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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/213,613	12/18/1998	REEMA GUPTA	19898/5	6656

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EXAMINER

CALDWELL, ANDREW T

ART UNIT	PAPER NUMBER
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2157

DATE MAILED: 11/20/2003

26

Please find below and/or attached an Office communication concerning this application or proceeding.

8

**Office Action Summary**

Application No.

09/213,613

Applicant(s)

GUPTA ET AL.

Examiner

Andrew Caldwell

Art Unit

2157

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 March 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**Remarks**

Claims 1-9 are pending.

The Examiner encourages the Applicants to review all cited patents or U.S. Patent Publications that are commonly assigned to EMC, whether or not the cited references are actually used in a rejection. If the Applicants file a statement of common ownership with respect to Kedem, U.S. Patent No. 6,195,761, they are encouraged to also state which of the other EMC patents that only qualify as prior art under 35 U.S.C. 102(e) were commonly owned, thereby removing any question as to whether these patents are excluded as prior art by 35 U.S.C. 103(c).

**Specification**

The abstract of the disclosure is objected to because it does not describe the features of claim 5 and the last four lines of claim 9. Correction is required. See MPEP § 608.01(b).

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. See the comments above with respect to the abstract.

The specification is objected to under 37 CFR 1.74 because the brief description of the drawings and the specification do not contain references to newly added figures 18-33. Correction is required. If responding to this objection requires excessive amendments to the specification (in excess of 20 replacement sections), a substitute specification is required. A substitute specification filed under 37 CFR 1.125(a) must

only contain subject matter from the original specification and any previously entered amendment under 37 CFR 1.121. If the substitute specification contains additional subject matter not of record, the substitute specification must be filed under 37 CFR 1.125(b) and (c).

### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the subject matter of claim 5 and the last four lines of claim 9 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. **The objection to the drawings will not be held in abeyance.**

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

1 were made absent any evidence to the contrary. Applicant is advised of the obligation  
2 under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was  
3 not commonly owned at the time a later invention was made in order for the examiner to  
4 consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)  
5 prior art under 35 U.S.C. 103(a).

6  
7 Claims 1-3 and 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable  
8 over Kedem, U.S. Patent No. 6,195,761, in view of van der Wal, A., "Efficient  
9 Interprocessor Communication in a Tightly Coupled Homogenous Multiprocessor  
10 System," Proc. of the IEEE Workshop on Future Trends of Distributed Computing  
11 Systems, IEEE, pp. 362-368, October 1990, for the reasons given with respect to  
12 Kedem, U.S. Patent No. 6,167,485, in the last Office action. Kedem '761 was first cited  
13 in the Office action mailed on October 31, 2001 (paper no. 6). Kedem '761 contains  
14 substantially the same disclosure as Kedem '485. The similarity should have been  
15 readily apparent to the Applicants in the course of their normal review of cited  
16 references. However, the Examiner pointed the similarity out to the Applicants on  
17 pages 25-26 of the Office action. The Examiner assumed that given the discussion of  
18 Kedem '761 in the Office action, the Applicants would read the reference and file a  
19 statement of common ownership for Kedem '761 along with the corresponding  
20 statement for Kedem '485. The Applicants did not. Given the similarity between the  
21 references and the likelihood of the Applicants filing a statement of common ownership  
22 in response to this Office action, no reasons for rejection will be given in this Office

1 action since they should be readily apparent from the discussion of Kedem '485 in prior  
2 Office actions.

3  
4 Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kedem  
5 '761 in view of van der Wal, as applied to claim 1 above, and further in view of Sato et  
6 al., U.S. Patent No. 5,133,071. No reasons for rejection will be given in this Office  
7 action since they should be readily apparent from the discussion of Kedem '485 in prior  
8 Office actions.

9  
10 Claims 1-3 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable  
11 over the Symmetrix Model 5500 Product Manual, Rev. G, EMC Corp., pp. 1-236  
12 (Symmetrix Product Manual), in view of Litt, U.S. Patent No. 5,815,651, and further in  
13 view of of van der Wal, A., "Efficient Interprocessor Communication in a Tightly Coupled  
14 Homogenous Multiprocessor System," Proc. of the IEEE Workshop on Future Trends of  
15 Distributed Computing Systems, IEEE, pp. 362-368, October 1990.

16  
17 Regarding claim 1, the Symmetrix Product Manual teaches the invention  
18 substantially as claimed by disclosing a system comprising a shared service processor  
19 providing a single point of contact for a user interfacing with at least one line processor  
20 (pp. 11 and 21-22, particularly Fig. 3 on p. 22 showing the line processors/channel  
21 directors and the service processor). The Symmetrix Product Manual teaches that the  
22 service processor communicates with the line processors via a serial interface (p. 21

1 discussion of service processor – service processor communicates with Symmetrix  
2 subsystem using RS-232 interface). The fact that the service processor and the  
3 Symmetrix subsystem processors communicate implicitly shows that they exchange  
4 messages.

5 The Symmetrix Product Manual therefore does not teach a system wherein: (a)  
6 the service processor is in electrical communication with shared memory including  
7 mailboxes operable to enable communication between the at least one line processor  
8 and the service processor; (b) the service processor is operable to selectively deliver  
9 commands to a respective mailbox of a selected one of said at least one line processor;  
10 (c) the service processor is selectively operable to issue a system management  
11 interrupt to any or all of the at least one line processors, the interrupt signaling to the at  
12 least one line processor to access a respective mailbox in the shared memory.

13 Litt on the other hand teaches a system in which the a service processor is  
14 connected to various controlled processors via a parallel bus as opposed to a serial bus  
15 as in the Symmetrix Product Manual (col. 4 lines 20-28).

16 It would have been obvious to one of ordinary skill in the art at the time the  
17 invention was made to modify the system of the Symmetrix Product Manual to directly  
18 couple the service processor to the line processors using a parallel bus based on Litt's  
19 teaching that a parallel data path/bus is an alternative to a serial data bus as in the  
20 Symmetrix Product Manual (col. 4 lines 20-28).

21 The combination of the Symmetrix Product Manual in view of Litt does not teach  
22 a system wherein: (a) the service processor is in electrical communication with shared

1 memory including mailboxes operable to enable communication between the at least  
2 one line processor and the service processor; (b) the service processor is operable to  
3 selectively deliver commands to a respective mailbox of a selected one of said at least  
4 one line processor; (c) the service processor is selectively operable to issue a system  
5 management interrupt to any or all of the at least one line processors, the interrupt  
6 signaling to the at least one line processor to access a respective mailbox in the shared  
7 memory.

8 van der Wal on the other hand teaches a multiprocessor system in which  
9 processors connected on a bus communicate using mailboxes and interrupts (p. 362  
10 second complete paragraph in col. 2). van der Wal therefore teaches a system wherein  
11 a processor is in electrical communication with shared memory including mailboxes  
12 operable to enable communication between the processors (p. 362 second complete  
13 paragraph in col. 2). van der Wal also teaches a system in which one processor is able  
14 to selectively deliver messages/commands to a respective mailbox of a selected one of  
15 the other processors (p. 362 second complete paragraph in col. 2). van der Wal also  
16 the "sending" processor is selectively operable to issue a system management interrupt  
17 to any or all of the at least one "receiving" processors, the interrupt signaling to the at  
18 least one "receiving" processor to access a respective mailbox in the shared memory (p.  
19 362 second complete paragraph in col. 2). van der Wal therefore teaches a mailbox  
20 communication scheme but does not teach its use in the particular context of line and  
21 service processors.



1           It would have been obvious to one of ordinary skill in the art at the time the  
2 invention was made to combine van der Wal's communication scheme using shared  
3 memory mailboxes and interrupts with the system of the combination of the Symmetrix  
4 Product Manual in view of Litt because a person of ordinary skill in the art would clearly  
5 recognize that some interprocessor communication scheme must be selected to  
6 implement the system of the combination of the Symmetrix Product Manual in view of  
7 Litt. Otherwise, the system could not operate. In this context, of a bus based  
8 multiprocessor system as in the combination, a person of ordinary skill in the art would  
9 recognize that reducing bus contention is an important consideration (van der Wal p.  
10 362 second complete paragraph) and would therefore choose the interprocessor  
11 communication scheme described by van der Wal.

12           As to claim 2, the combination of the Symmetrix Product Manual in view of Litt  
13 and further in view of van der Wal as applied to claim 1 above teaches these features.  
14 Official notice is hereby taken of the fact that an acknowledgement to a message is well  
15 known in the art. It would have been obvious to one of ordinary skill in the art at the  
16 time the invention was made to have the line processor of the combination of the  
17 Symmetrix Product Manual in view of Litt and further in view of van der Wal  
18 acknowledge a message sent by the service processor because it would eliminate  
19 uncertainty as to whether or not the line processor received the message. The  
20 combination therefore teaches a system in which the line processor accesses the  
21 command delivered to a respective mailbox, interprets the command, and then delivers  
22 an appropriate response to a mailbox (p. 362).

1           As to claim 3, the combination of the Symmetrix Product Manual in view of Litt  
2           and further in view of van der Wal teaches a system wherein the line processor is  
3           operable to assert its system management interrupt line to the service processor after  
4           delivering the appropriate response to the mailbox since van der Wal teaches that all  
5           processors can communicate with each other (p. 362).

6           As to claims 6-8, they are method claims corresponding to apparatus claims 1-3,  
7           respectively. Since they do not teach or define above the information in the  
8           corresponding apparatus claims, they are rejected under the same basis.

9  
10           Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over the  
11           Symmetrix Product Manual in view of Litt, and further in view of van der Wal, as applied  
12           to claim 1 above, and further in view of Sato et al., U.S. Patent No. 5,133,071.

13  
14           Regarding claim 4, the combination of the Symmetrix Product Manual in view of  
15           Litt and further in view of van der Wal teaches the invention substantially as claimed.  
16           See the rejection of claim 1 above. The combination does not teach the additional  
17           feature of claim 4.

18           Sato on the other hand teaches a service processor electrically coupled to a  
19           nonvolatile memory/disk drive (Col. 1 lines 17-21). The disk drive stores operating  
20           programs for embedded processors/channel controllers. The service processor loads  
21           these operating programs into memory when the system powers on (Col. 1 lines 17-26).  
22           These operating programs are initialization and/or boot information. Upon considering

1 Sato's teachings, a person of ordinary skill in the art at the time the invention was made  
2 would have recognized that Sato's teaching is merely a specific example of the general  
3 principle of having a service processor configure a system by loading the executable  
4 code for an embedded processor at power up.

5 It would have been obvious to one of ordinary skill in the art at the time the  
6 invention was made to combine Sato's teaching with the system of the combination of  
7 the Symmetrix Product Manual in view of Litt and further in view of van der Wal by  
8 attaching a disk drive to the Symmetrix Product Manual's service processor and then  
9 having the Symmetrix Product Manual's service processor load executable programs  
10 from the disk drive into the memories of the host and disk adapter processors at power  
11 up. The Symmetrix Product Manual teaches that the service processor configures the  
12 components of the storage system (p. 21 downloads the Symmetrix configuration).  
13 Based on this teaching, a person of ordinary skill in the art at the time the invention was  
14 made would have made the combination because storing the host and disk adapter  
15 programs on the service processor's disk drive rather than in ROM co-located with the  
16 individual processors would make software upgrades easier.

17 As to the service processor, Sato does not explicitly teach that the service  
18 processor boots from its attached disk drive. However, official notice is hereby take of  
19 the fact that processors with attached disk drives commonly boot from programs stored  
20 on the attached disk. It would therefore have been obvious to one of ordinary skill in the  
21 art at the time the invention was made to combine the teaching of which official notice is  
22 taken with the system of the combination of the Symmetrix Product Manual in view of

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1 Litt and further in view of van der Wal and further in view of Sato by having the  
2 nonvolatile memory attached to the service processor store initialization and/or boot  
3 information for the service processor. This combination would have been obvious  
4 because storing the service processor boot and/or initialization information on the  
5 attached disk drive makes upgrades to the service processor software easier.

### 7 ***Response to Arguments***

8 Applicant's arguments with respect to claims 1-9 have been and are deemed  
9 persuasive. The rejection is withdrawn because the Applicants' statement of common  
10 ownership is sufficient under 35 U.S.C. 103(c) to exclude Kedem, U.S. Patent No.  
11 6,167,485, as prior art.

### 13 ***Conclusion***

14 A shortened statutory period for response to this action is set to expire **three**  
15 **months** from the mail date of this letter. Failure to respond within the period for  
16 response will result in **ABANDONMENT** of the application (see 35 U.S.C. 133, M.P.E.P.  
17 710.02, 710.02(b)).

18  
19 Any inquiry concerning this communication or earlier communications from the  
20 examiner should be directed to Andrew Caldwell, whose telephone number is (703)  
21 306-3036. The examiner can normally be reached on M-F from 9:00 a.m. to 5:30 p.m.  
22 EST.

23  
24 If attempts to reach the examiner by phone fail, the examiner's supervisor, Ario  
25 Etienne, can be reached at (703) 308-7562. Additionally, the fax numbers for Group  
26 2100 are as follows:

27  
28 Fax Responses: (703) 872-9306  
29

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Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist at (703) 305-9600.

A handwritten signature in black ink that reads "Andrew Caldwell". The signature is written in a cursive style with a large, circular flourish at the end.

Andrew Caldwell  
703-306-3036  
November 7, 2003